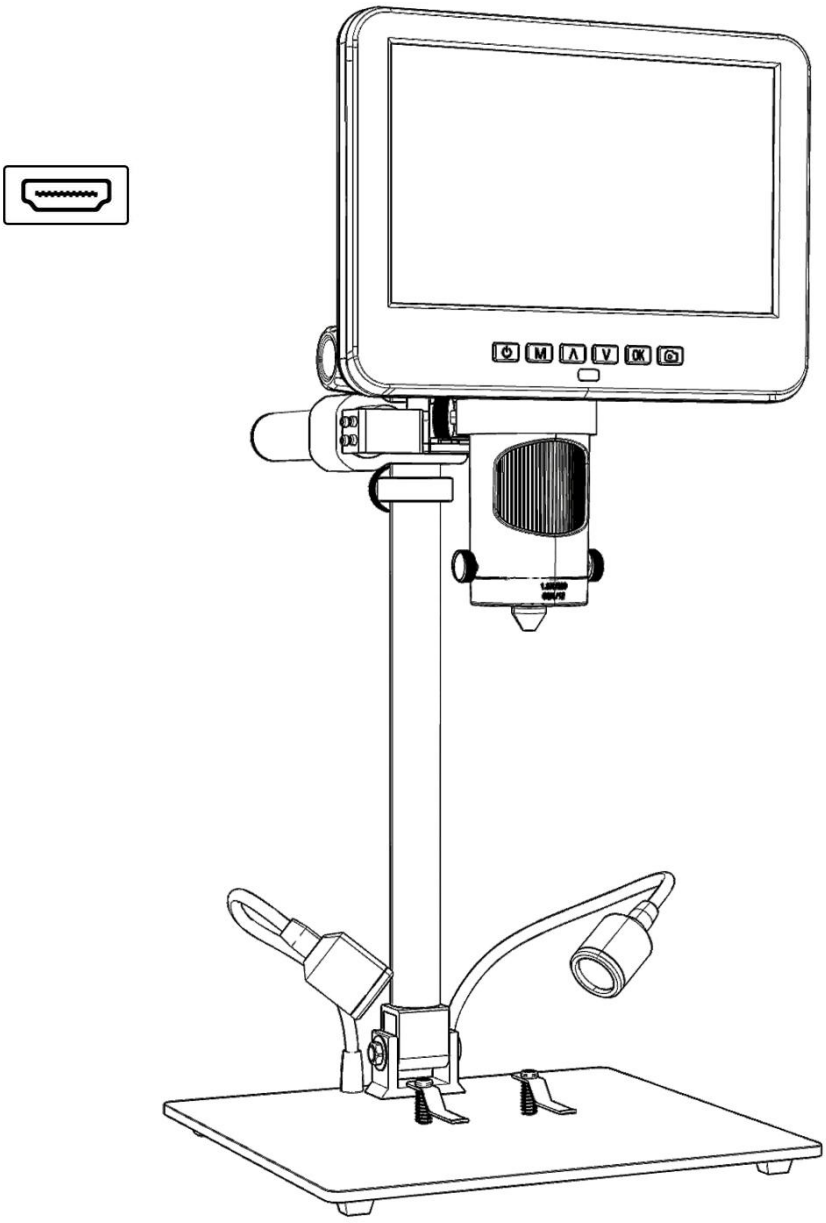
Digital Microscope 246S, 249S
Users Manual (metal stand) Ver.02



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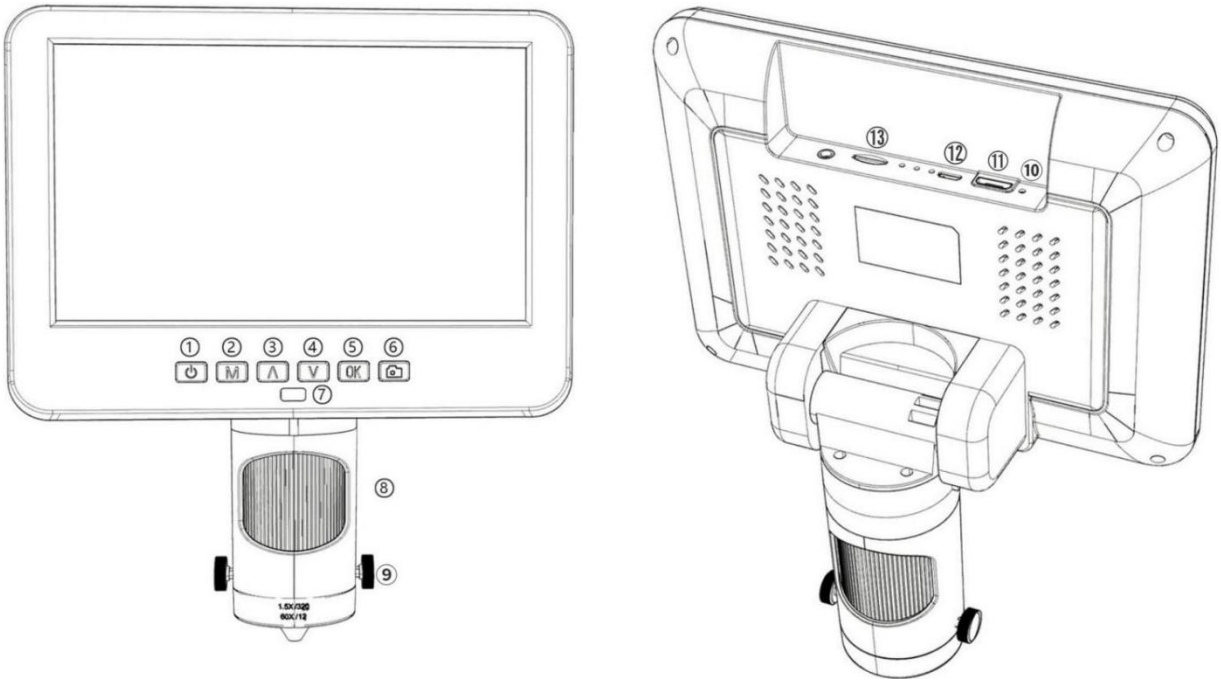
Specifications

Video resolution	UHD 2880x2160 24fps; FHD 1920x1080 60fps/30fps ; HD 1280x720 120fps
Video Format	MP4
Frame rate	Max 120fps (600 Lus illumination &HDP120)
Magnification ratio	Lens A: 18-720x; Lens D: 1800-2040x; Lens L: 60-240x （with 3 times digital zoom, output to 28inch HDMI monitor)
Working Distance	Lens A: 12mm-320mm; Lens D: 4mm- 5mm; Lens L: 90mm-300mm
Photo resolution	Max 5600*4200 (24M 5600*4200)
Photo Format	JPG
Storage	Micro-SD card, up to 32G (not included)
Video-output	HDMI
PC Support	Windows XP/7/8/10, PC software with measurement
Power supply	5V 2A and above
Stand size	20cm*18cm*33cm
Package include	Microscope, Metal stand, 3 Lenses(A,D&L), Slide holder, Remote, Dimmer cable, HDMI cable, USB cable, Slides kit, Tweezers, Bug box

Package include

①Microscope
②Metal stand
③Lens A(has been fixed)
④Lens D
⑤Lens L
⑥Remote
⑦Dimmer cable
⑧HDMI cable
⑨USB cable
⑩Slide holder
⑪Slides kit
⑫Tweezers
⑬Bug box

Button&Connection



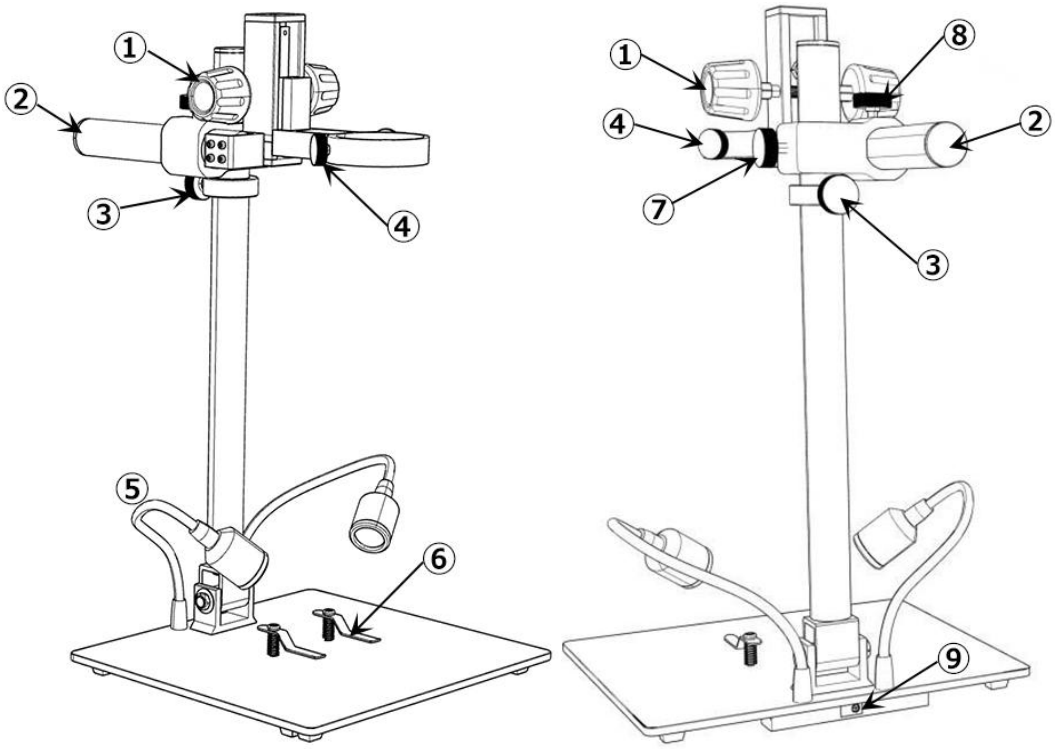
(P2 Buttons&Connection)

①Power on/off
②Mode/Menu
③Up/Digital zoom in
④Down/Digital zoom out
⑤OK/Start recording
⑥Take pictures
⑦Remote signal receiver (where you aim remote to)
⑧Focusing tube
⑨Lens fixing screws
⑩Reset
⑪HDMI port
⑫USB port
⑬SD card slot

Stand installation

Please see the attached installation diagram.

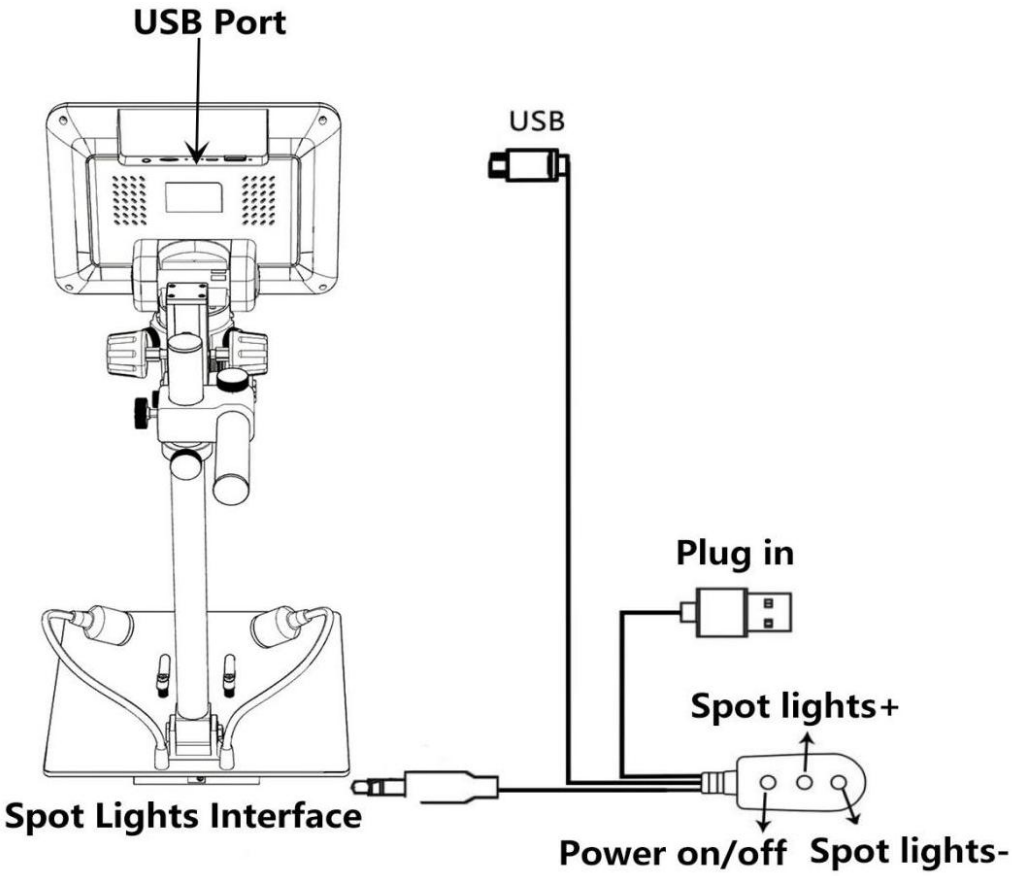
Stand instructions



（P3 Stand instructions）

①Secondary stand Lift
②Boom Arm
③Lower Limit Stop
④Monitor Fixing Screws
⑤Spot Lights
⑥Clips
⑦Boom Arm V-locker
(lock the arm in vertical direction)
⑧Boom Arm H-locker
(lock the arm in horizontal direction)
⑨Spot Lights Socket

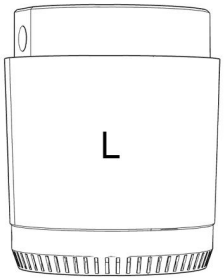
Quick Start



(Pic 4 Connection)

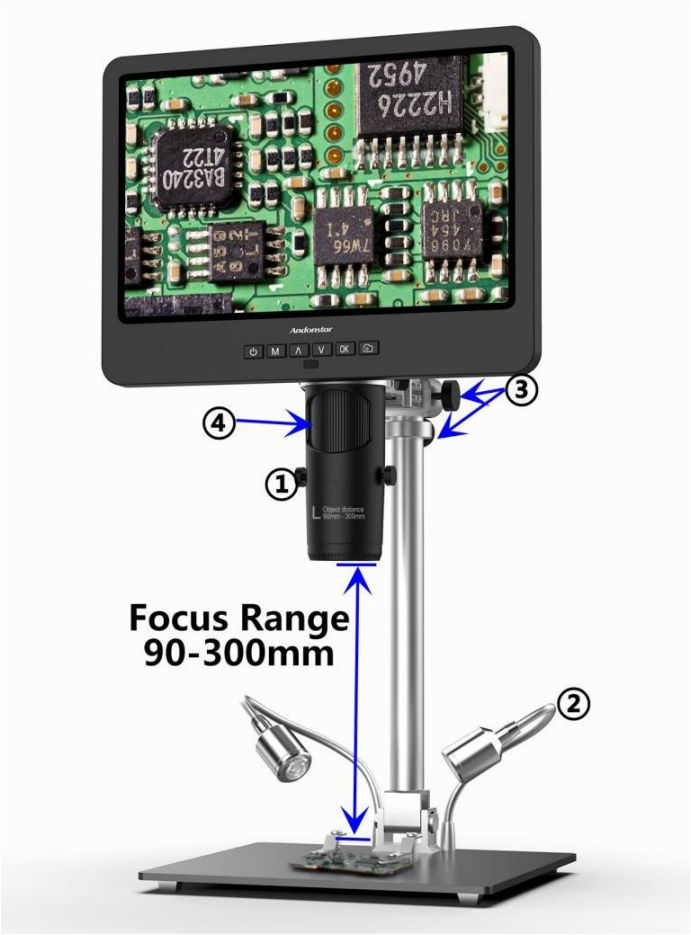
How to choose lens

Lens L：



Working distance： 90mm-300mm，**Magnification：** 60-240x（with3 times digital zoom, output to 28inch HDMI monitor)

Applications： circuit board observe, watch repair etc.



(Pic 5 Go with lens L)

Steps： In pic 5 it marked out which parts of the microscope are involved to each step.

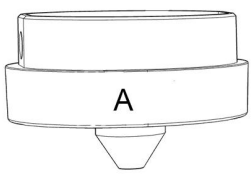
①Install and fix lens L to the bottom of the focusing tube.

②Bend the two goose-neck spot lights, make the field of view enough illuminated.

③Loose the Arm V-locker, locate the whole monitor part to a desire height (distance from the lens to the specimen should be around 90mm to300mm), then fix the V-locker. In order to adjust object distance more precisely, adjust the height of the secondary stand. The shorter the object distance is, the bigger magnification is.

④Turn the focusing tube to get a clear image. Turn it clockwise to zoom in and the other way to zoom out.

Lens A：



Working distance： 12mm-320mm，**Magnification：** 18-720x（with3 times digital zoom, output to 28inch HDMI monitor)

Applications: observe whole size or part of coins, stones/stamps collect, circuit board observe etc.

(Pic 6 Go with Lens A)

Steps： In pic 6 it marked out which parts of the microscope are involved to each step.

①Install and fix lens A to the bottom of the focusing tube.

②Bend the two goose-neck spot lights, make sure the light shines on the coin.

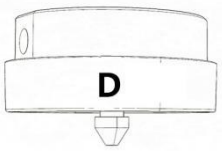
③Loose the Arm V-locker, locate the whole monitor part to a desire height (distance from the lens to the specimen should be around 12mm to 320mm), then fix the V-locker. In order to adjust object distance more precisely, adjust the height of the secondary stand. The shorter the object distance is, the bigger magnification is.

④Turn the focusing tube to get a clear image. Turn it clockwise to zoom in and the other way to zoom out.

*In order to observe part of the coin, please lower the arm height to shorten the object distance, then turn the focusing tube, get a clear image.

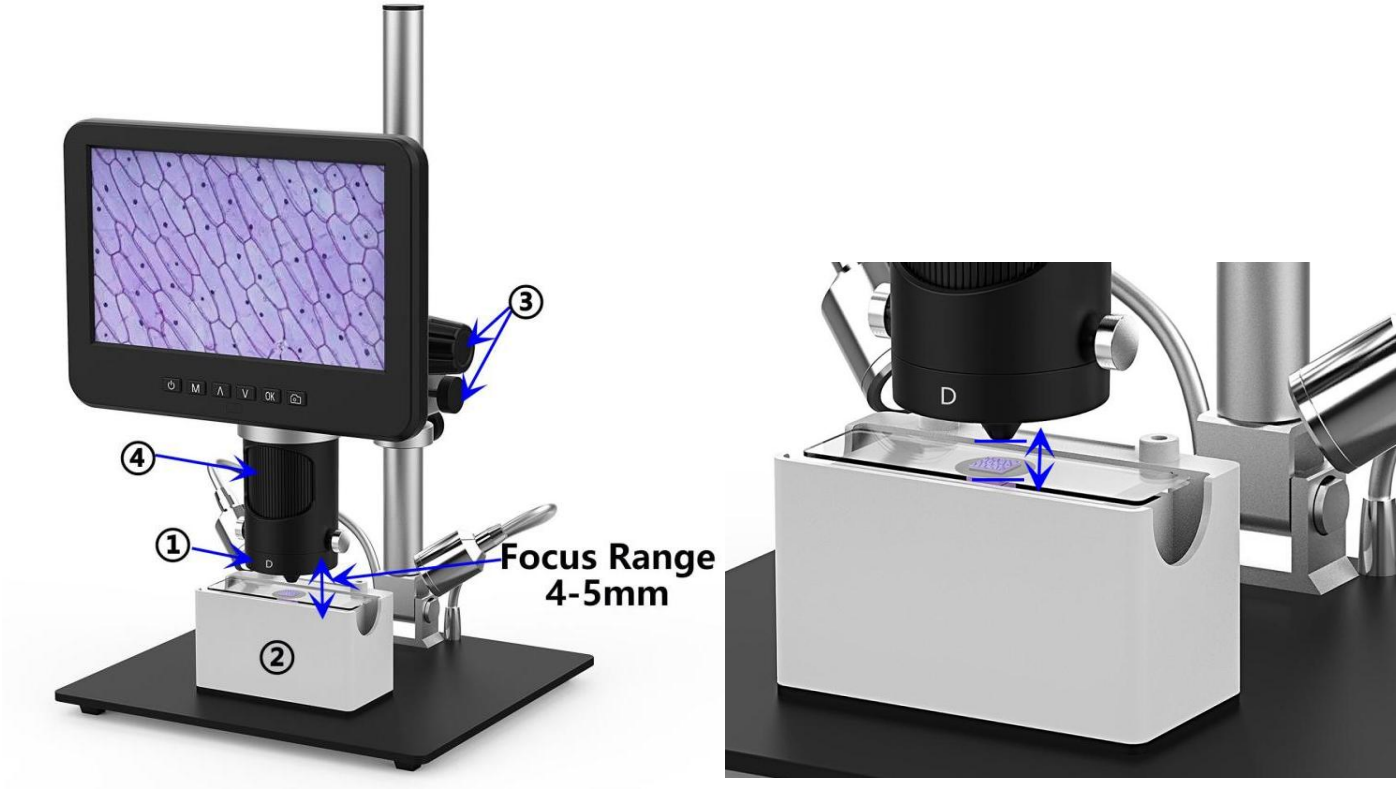
*Steps above can also be applied to observe plants, stones etc.

Lens D：



Working distance：4mm-5mm，**Magnification**：1800-2040x（with3 times digital zoom, output to 28 inch HDMI monitor)

Applications: Microscope slides etc.



(Pic 7 Go with lens D)

Steps: In pic 7 it marked out which parts of the microscope are involved to each step.

①Install and fix lens D to the bottom of the focusing tube.

②Place a slide on the slides holder and power on the slides holder. (goose-neck spot lights can not provide proper illumination in this case, so leave them and use the same cable interface to power on slides holder)

③Loose the Arm V-locker, locate the whole monitor part to a desire height (distance from the lens to the specimen should be around 4mm to 5mm), then fix the V-locker. Since the focus range is very short in this case, we recommend users to adjust the height of the secondary stand instead, which is more precisely. The shorter the object distance is, the bigger magnification is.

④Turn the focusing tube to get a clear image. Turn it clockwise to zoom in and the other way to zoom out.

***Lens D's magnification is quite big, which requires a short object distance. Meanwhile, any tiny movement or shake of specimen would be displayed as huge on the monitor, which requires user to operate very carefully and patiently.**

Digital zoom

Press up button on the monitor (pic 2 #③) to apply digital zoom in, and down to zoom out (pic 2#④)

Save files to micro SD card

Insert the memory card to record videos or take photos, the memory card does not support hot swap.

Record videos

In video mode( ) and photo mode( ) press “OK” button to start recording. Press it again to stop.
It works the same way with the “OK” button on the remote.

Take photos

In video mode( ), photo mode( ) and while the microscope is recording, press “Capture” button( ) to take photos.
The button marked as a camera on (pic 2 #⑥) works the same way.

Playback & manage files

Use button “M” to get into Playback mode, press “up” or “down” to browse files.
In order to play videos, press “OK” to play it, “OK” to pause, “M” to stop
*** In playback mode the microscope can not take photos or videos**

Remote

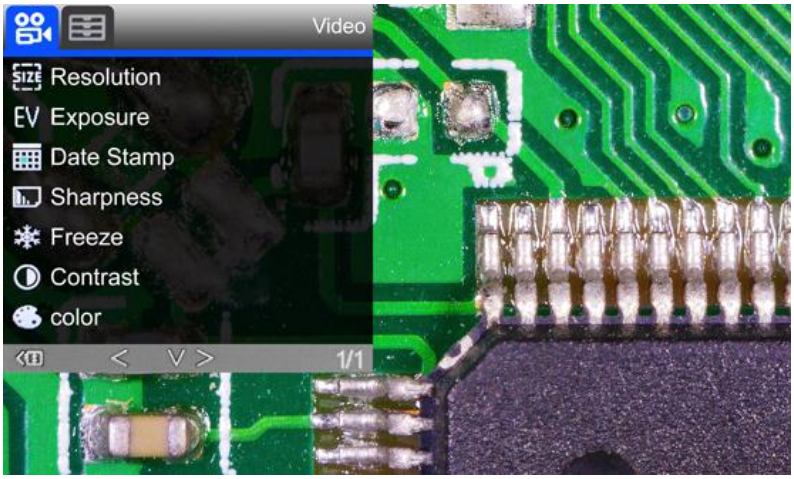
(P8: Remote Control Instructions)

Note: The “Switch lens image” button is only available after inserting the endoscope

Settings

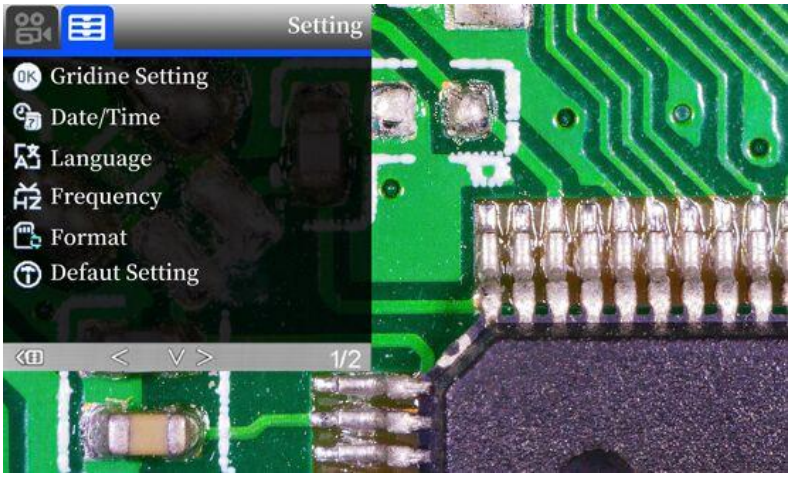
In any mode, press and hold M button until it shows video/photo/playback menu, press M again, get into Setting menu.

For example. In video mode, press and hold M button, it would show video menu as below:



(pic 9 video menu)

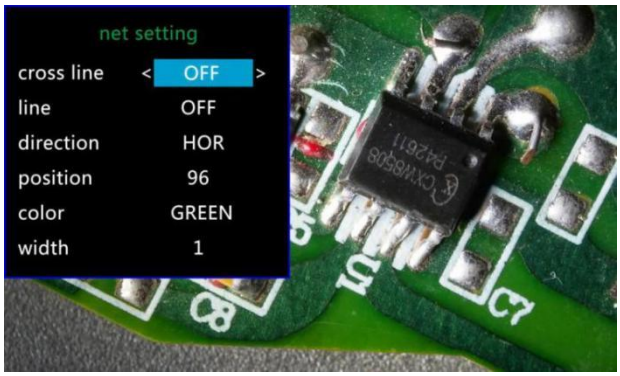
And then, press M again to get into settings menu,as right below:



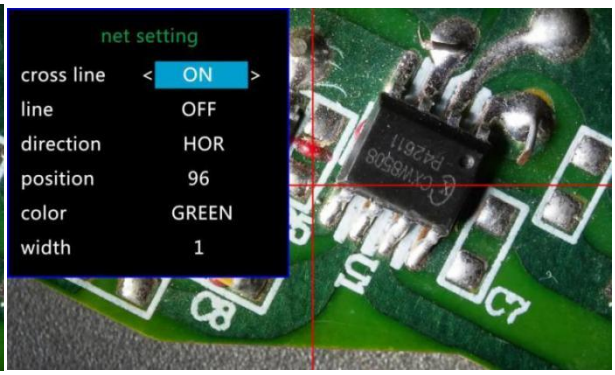
(pic 10 setting menu)

Gridline Settings (remote needed)

Press the “Up” and “Down” keys on the remote to select among “cross line”, “line”, “direction”, “position”, “color”and “width”. Use “Left” and “Right”keys on the remote to change the settings.

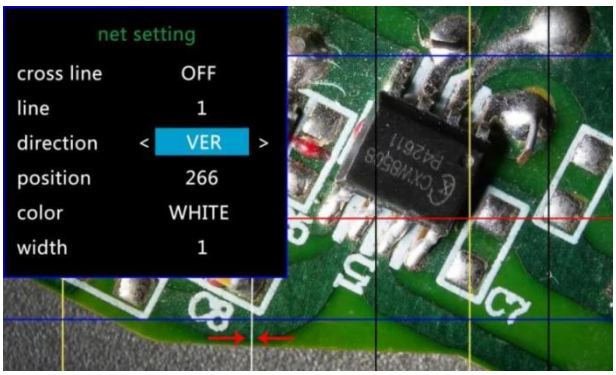


(P11: Gridline Setting menu)

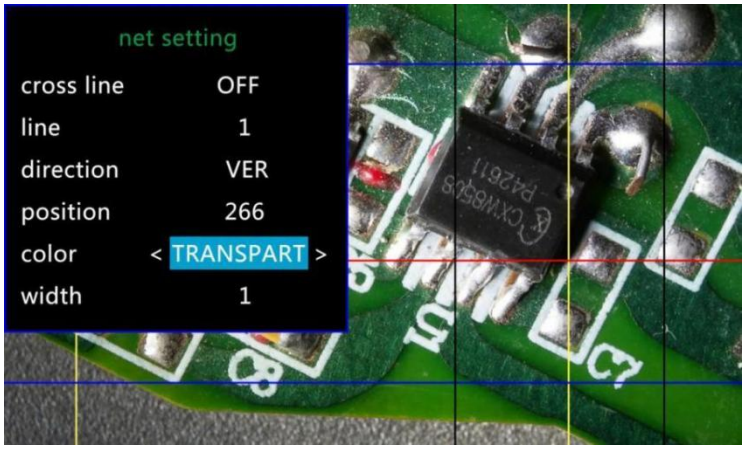


(P12: cross line on)

(P13: line1, HOR&160)



(P14: line1, VER&266)



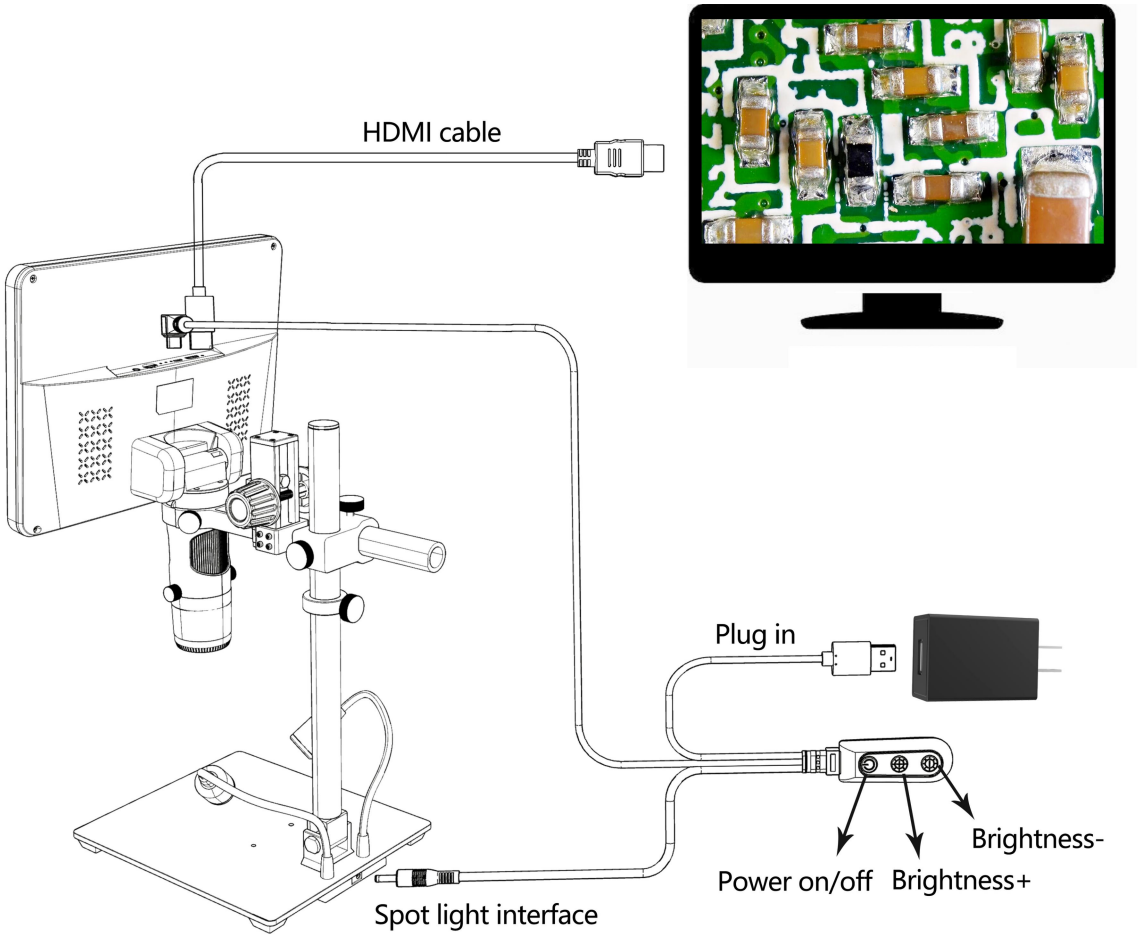
(P15: Set the color of line 1 to transparent)

Save Setting

If you need to save the settings, long press the power button to turn off the device after you set everything right. If you cut off the power directly, the settings will not be saved.

Output to external devices

◆HDMI output



（P14 HDMI Output Connection）

•Firstly, make sure the external device is actual real FHD 1080 HDMI monitor, otherwise the display resolution can not reach to 1080.

•When the microscope is connect to external devices, image data would transfer to the external device, so the microscope monitor display no image.

•HDMI output supports photo capture, but not video recording.

◆USB Output

1. Software Installation

Where to download the software (Please type all letters properly capitalized):

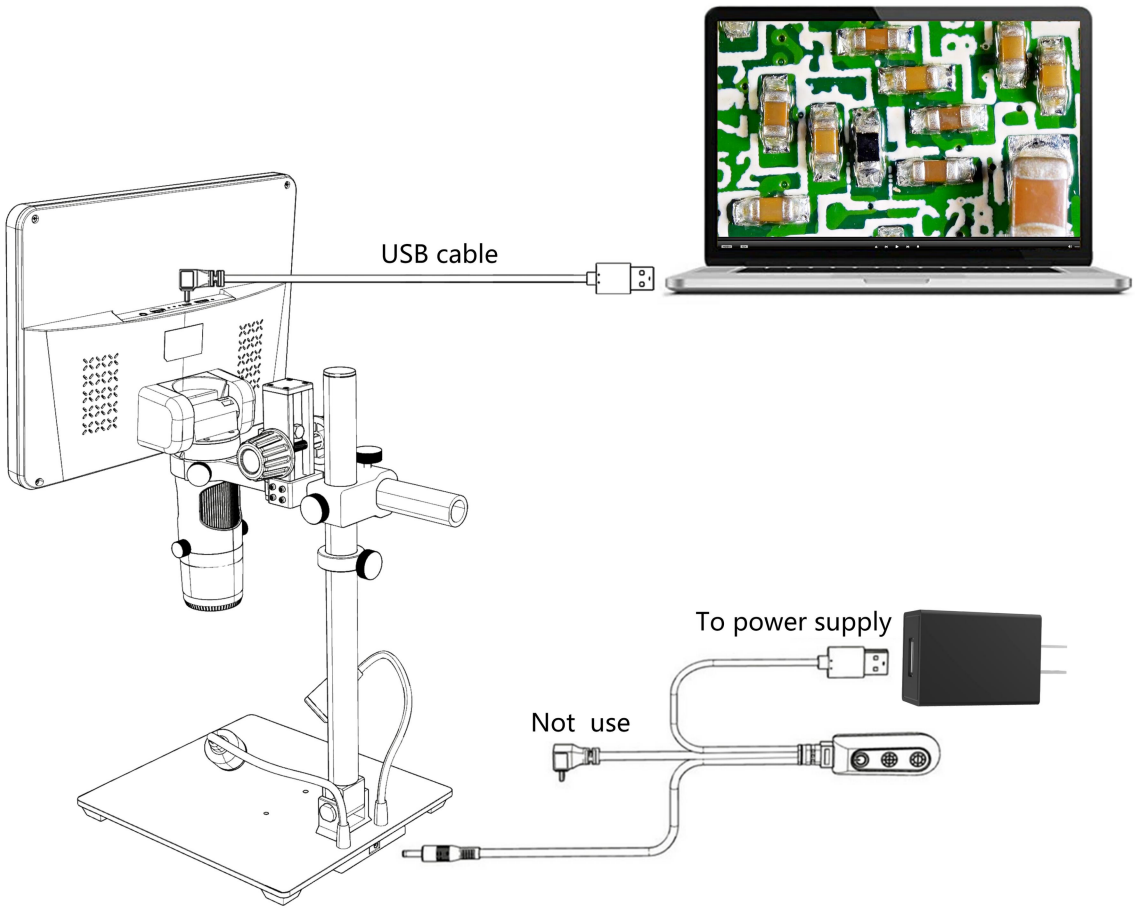
https://bit.ly/3TcQVGw

*System support: Windows XP SP3, Windows 7, Windows8, Windows10, Windows11

*Runtime: Microsoft.Net Framework 4.0， Microsoft Visual C++ 2010 Runtime

If either of two runtimes above mentioned is not completely installed, an error will be displayed during installation.

2. Connect to Computer



(P15 USB Output Connection)

1) Objects required: PC (Windows system with the“Microscope Measure”software); USB microscope (device name:“USB Camera”), Ruler.

2) Connect the microscope and computer with the USB cable (As shown in P15).

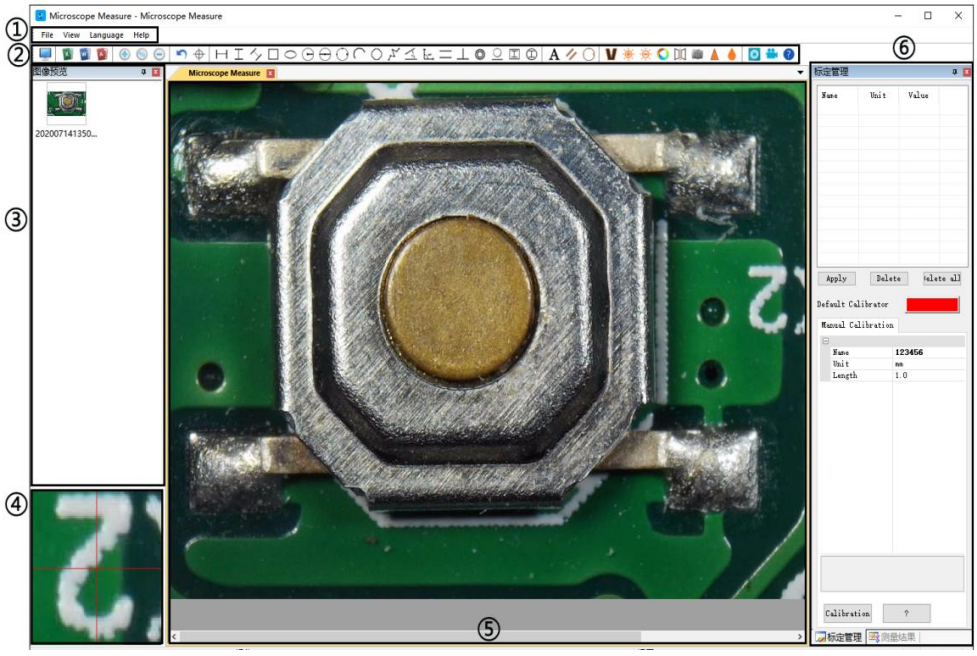
3) Press the “Down”button on the monitor or remote control to select "PC Camera" from the microscope interface, and then press “OK”button.

4) Open the software“Microscope Measure”, Click “File”→ “Open”→ “Open Device”→ “USB MODE” → “USB Camera”.

3.Icons Definitions

	Zoom In		Measure a 3-point angle (degree)
	Normal（original scale）		Distance of parallel lines(length)
	Zoom out		Distance of a point and a line (length)
	Undoes the last action		Distance of 2 circles(radius, length)
	Cross hairs (crosier,4 grid, 8 grid)		Distance of a line and a circle(radius,length)
	Distance of 2 horizontal points		Add a square mark
	Distance of 2 vertical points		Add a circle mark
	Distance of any 2 points		Add text
	Measure a rectangular (width,height, perimeter & area)		Distance of 2 lines(length)
	Measure an ellipse (Long-axis radius, short-axis radius, perimeter & area)		3 points circle(radius, perimeter & area)
	Measure a radius circle (radius, perimeter & area)		Edge detection
	Measure a diameter circle (diameter, perimeter & area)		Increase/decrease brightness
	Measure a 3-point circle (radius, perimeter & area)		Flip horizontal
	Measure a 3-point arc (radius, degree, perimeter & area)		Sharpen
	Measure a polygon (perimeter & area)		Smooth
	Measure fold-lines (length)		Take a picture
	Measure a 4-point angle (degree)		Take a video

4.Software Interface Definitions and Functions



①Main menu:

Here, users can open different devices or lead in pictures to observe or edit, do video setting or save setting, choose which windows to show or hide etc.

②toolbar:

Here are the tools that would be useful for users to do measuring and image analysis. Definition and function of different tools would be given in chapter “Icons definitions”. Users can choose to hide or show this toolbar in “View→Toolbars and Docking Windows→Standard”.

③Pictures browser:

Here is where users can review all pictures they’ve captured. Users can also edit the picture by right clicking the picture and open it in the main operating window. Choose “View→Toolbars and Docking Windows→Picture browser” to show or hide this window.

④Secondary operating window:

The image showing in this window always follows your cursor, and with a bigger magnification. With help of this window, the result of measuring can be much more precisely.

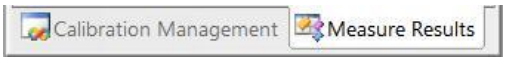
It belongs to window “Pictures browser”.

⑤Main operating window:

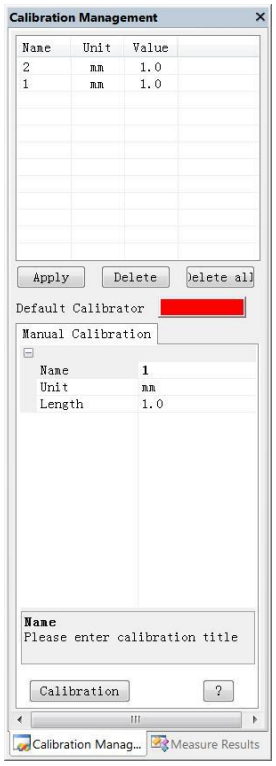
This windows shows the full view from the microscope. And it is also the place where users do measuring and image analysis.

⑥Calibration Management and Measuring Results:

These two windows shows at the same place, users can switch at the bottom of this window.



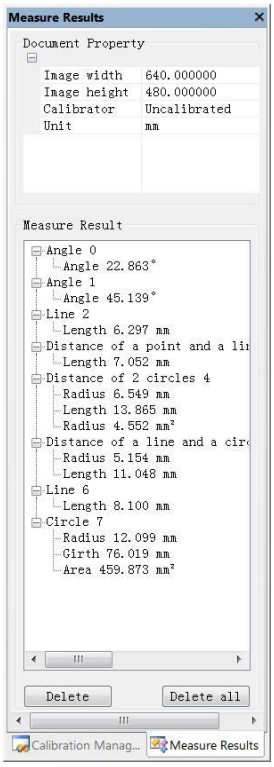
◆Calibration Management



→ Shows the list of different Calibrations. Users can apply or delete the one they want.

→Where to set new Calibrators. (The details of how to set calibrator would be given in another chapter)

◆Measure Results

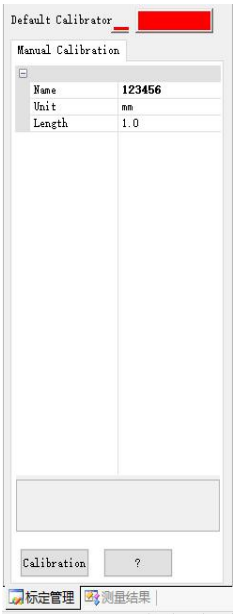


→ Shows the size of the whole view. Users Can change it in “File→ Video setting→Video capture pin→(S)”.

→ Shows all results of measuring.

5. Functions

1) Calibration

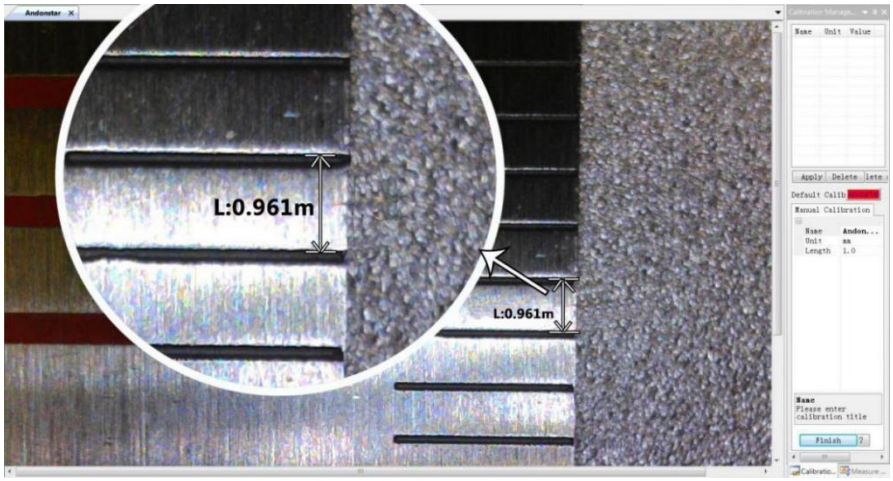


1, Put the ruler under the digital microscope, adjust the focus wheel and the height of the stand, to get the best clearance. (during the rest of the process, do not change the object distance any more).

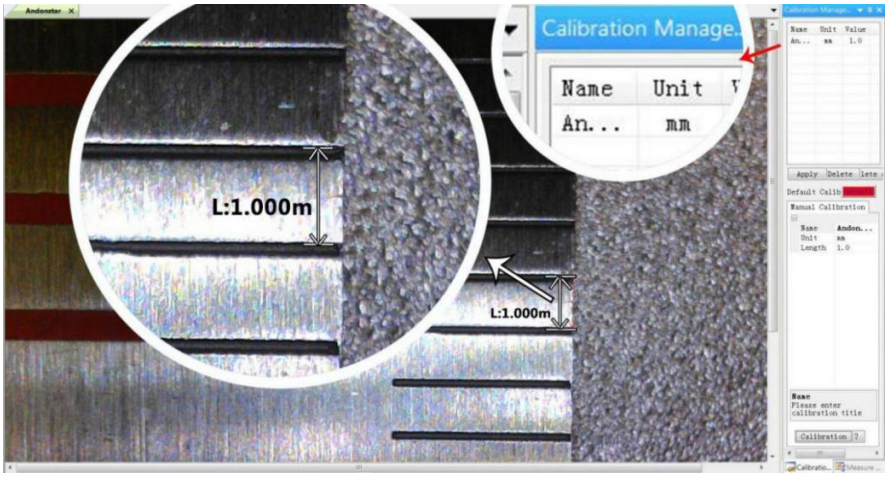
2. In the “Calibration management” set the name and unit length of the new calibration(refer the picture on the right). Then, click “Calibration”, meanwhile, the “ ” in the toolbar should have been chosen automatically. If not, please choose it yourselves.

3, Move the cursor to the main operation window, draw a line (the length is the unit length which has been set in step 2) with help of the ruler. After these, click the “Finish” button in the bottom of the “Calibration Management” window.

4, Check. The length of the line you draw in step 3 should become as the unit length. The name of the new calibration should have showed in the list of calibrations.



3)



4)

2) Measuring

1, Choose the tool you need to do measuring in the toolbar.

2, Click dots or draw lines that you need to measure in the main operating window.

3, Place the results of measuring in a proper place around the target.

3) Special Effect

·Includes: Edge detection, Inverse color, Flip horizontal, Relief, Sharpen and Smooth.

·Steps:

1, Choose the special effect you need in the toolbar.

2, In the main operating window, long press the Left to draw a rectangle which can covers the whole target area, loose the Left, get the special effect result.

3, Click Left again, end the special effect.

PS: If you want to use "Flip horizontal", draw a random rectangle in the view, and the whole view would be flipped. Click Left again, end the special effect.

4) Capture and Recording

·Capture

1, Click " " to capture.

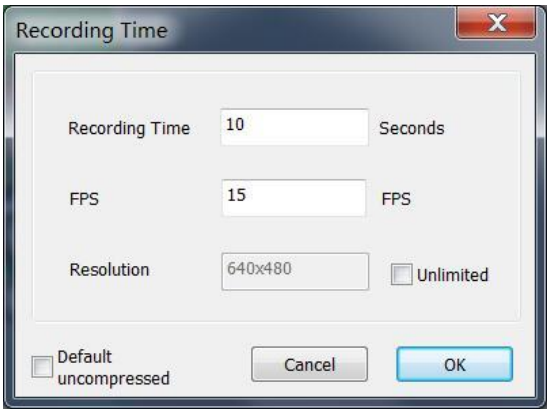
2, The result of capture can be checked and deleted in the "Picture browser" window.

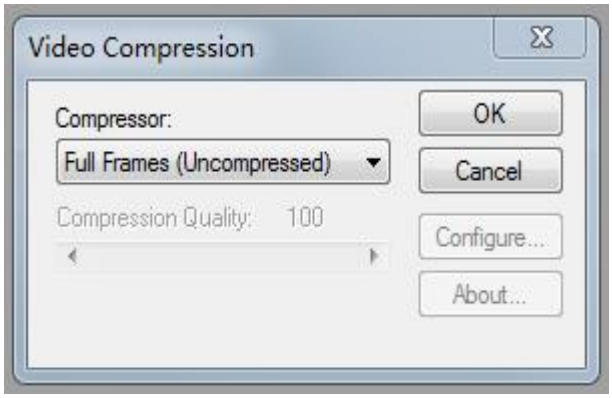
3, Check and change the save path: "File→Save Setting→Path".

·Recording

1, Choose the size of the view as 640*480 in "File→Video Setting→Video Capture Pin→Output size(S)"

2, Click " ", set some other things and start to record.





3, On the top left corner there shows"recording"and a timer. It means it's recording.

4, Check and change the save path: "File→Save Setting→Path".

Safety and maintenance

1. Please read this users manual carefully before using the device.
2. This product contains tiny parts and components that are NOT edible. Please let children and teens use this device under proper guide and supervise by adults. Disables, patients and people with allergy should not use this product.
3. It is not waterproof, and can not be placed in extreme environment: heat, high pressure etc.. Please keep and use it in safe, clean and dry environment. Stay it away from oil, gas, water and corrosive potions.
4. Clean the lens when image goes blurry: cut the power supply firstly, wipe the lens with a soft clean cloth moistened with alcohol, make sure the whole device is dry before power it on again. Users should follow these steps for daily cleaning as well, remember to ONLY wipe the INSULATED part of the monitor.
5. Do not drop, hard press or leave the screen with sharp object. Hold the frame of the monitor to adjust its orientation. The monitor is not waterproof, please clean it with soft and dry material.
6. Please be aware that this microscope is not for medical use.

FAQ

1. Why it says 'missing files' during installation or initiator procedure?

Please confirm that in the system there are Microsoft. Net Framework 4.0 and Microsoft Visual C++ 2010 runtime.

2. The software works fine, but the software can not recognize the microscope.

Firstly, please make sure that you have connected the microscope to the PC properly and have chosen 'USB camera' on the microscope monitor. Secondly, if there is still no image, please check the 'Device Manager' of your PC, delete the previous USB camera from "image devices", then rescan device changes. Let the system identifies again. After its done, in the 'Imaging devices' there should have shown the current USB camera device name, which is "USB Camera". Then reboot the software.

3. Why there is a measurement error? In order to get a more precise measure result, you would need a more precise calibration. And when you apply a calibrator to measure a length, you need to keep the magnification still, which means you need to keep the object distance still as when you set the calibration.
4. Why the microscope can't be switch on? Please connect the microscope properly as pic 4, and make sure it has stable and strong 5V 2A power supply. If it doesn't work, pin the reset hole at the back side of the monitor.
5. Why can't I get a clear image?Please confirm the illumination work properly, and shine directly to the surface of the specimen. Adjust the height of the boom arm, or the secondary stand lift to change the distance from the lens to the specimen, and turn the focusing tube properly. If the image is still blurry, please clean the bottom of the lens use a piece of clean and soft cloth.
6. Why the setting changes can't be memorized? After changing settings, press and hold the button on the monitor to switch off the device. DO NOT cut off the power supply directly or use the dimmer cable to switch off the device.
7. Why the microscope reboots repeatedly? Please check the if the cable connection is firm and if the power

supply is stable and strong enough. Please check your power adapter is high quality 5V 2A.

8. Why it shows “card error” or “card is full” after inserting memory card to the device. Please format the card after insert it into the device. （Format steps refer to chapter “Save files to micro SD card”）

PS：If there are other questions or problems, please contact us as soon as possible, we will do our best to help! Thanks for your support!

Warranty

Warranty			
Name：		Address：	
Phone number：		Post code：	Email：
Model name：		Purchase date：	
Fault details：			
Date：		Fault description：	
Notice：			
Our warranty does not cover:			
1	If the purchaser can not provide a purchase proof, or it shows the product was bought as second hand condition		
2	If the product has been placed or used in an improper environment, such as heat, wet, wrong power supply environment etc.		
3	If the fault caused by accident, oversight, faulty operation or natural disasters etc.		
4	If the fault caused by people who are not belong to authorized organizations of our company during repacking, repair, dismantle, Or if users repack, repair or dismantle the device not following our advice.		
5	Out of warranty period.		